

AMENDMENT

IN THE CLAIMS:

Please cancel claims 1-23 without prejudice or disclaimer.

1-23. (Canceled)

24. (Original) A semiconductor device, comprising:
a ferroelectric capacitor formed above a semiconductor body; and
a hydrogen barrier formed along at least a portion of a side of the ferroelectric capacitor, the hydrogen barrier comprising:
a nitrided aluminum oxide material formed along at least a portion of the side of the ferroelectric capacitor; and
a silicon nitride layer formed over the nitrided aluminum oxide material.

25. (Original) The semiconductor device of claim 24, wherein the silicon nitride layer comprises a low silicon-hydrogen SiN material having an FTIR figure of merit value of about 0.05 or less, wherein the FTIR figure of merit is calculated as (Si-H absorbance) / (N-H absorbance x 1.4).

26. (Original) The semiconductor device of claim 25, wherein the low silicon-hydrogen SiN material has an FTIR figure of merit value of about 0.04 or less.

27. (Original) The semiconductor device of claim 25, wherein the low silicon-hydrogen SiN material has an FTIR figure of merit value of about 0.03 or less.

28. (Original) The semiconductor device of claim 24, wherein the silicon nitride layer comprises:
a first silicon nitride layer formed over at least a portion of the nitrided aluminum oxide material; and

a second silicon nitride layer formed over at least a portion of the first silicon nitride layer, the second silicon nitride layer comprising a low silicon-hydrogen SiN material having an FTIR figure of merit value of about 0.05 or less, wherein the FTIR figure of merit is calculated as (Si-H absorbance) / (N-H absorbance x 1.4).

29. (Original) The semiconductor device of claim 28, wherein the low silicon-hydrogen SiN material has an FTIR figure of merit value of about 0.04 or less.

30. (Original) The semiconductor device of claim 28, wherein the low silicon-hydrogen SiN material has an FTIR figure of merit value of about 0.03 or less.

31. (Original) A hydrogen barrier for protecting ferroelectric capacitors in a semiconductor device, comprising:

a nitrided aluminum oxide material formed along at least a portion of a side of a ferroelectric capacitor; and

a silicon nitride layer formed over the nitrided aluminum oxide material.

32. (Original) A semiconductor device, comprising:

a ferroelectric capacitor formed above a semiconductor body;

an aluminum oxide material formed along at least a portion of a side of the ferroelectric capacitor;

a first silicon nitride layer formed over at least a portion of the aluminum oxide material; and

a second silicon nitride formed layer over at least a portion of the first silicon nitride layer, the second silicon nitride layer comprising a low silicon-hydrogen SiN material having an FTIR figure of merit value of about 0.05 or less, wherein the FTIR figure of merit is calculated as (Si-H absorbance) / (N-H absorbance x 1.4).

33. (Original) The semiconductor device of claim 32, wherein the low silicon-hydrogen SiN material has an FTIR figure of merit value of about 0.04 or less.

34. (Original) The semiconductor device of claim 32, wherein the low silicon-hydrogen SiN material has an FTIR figure of merit value of about 0.03 or less.

35. (Original) The semiconductor device of claim 32, wherein at least a portion of the oxide material is nitrided.

36. (Original) A hydrogen barrier for protecting ferroelectric capacitors in a semiconductor device, comprising:

an aluminum oxide material formed along at least a portion of a side of a ferroelectric capacitor;

a first silicon nitride layer formed over at least a portion of the aluminum oxide material; and

a second silicon nitride layer formed over at least a portion of the first silicon nitride layer, the second silicon nitride layer comprising a low silicon-hydrogen SiN material having an FTIR figure of merit value of about 0.05 or less, wherein the FTIR figure of merit is calculated as (Si-H absorbance) / (N-H absorbance x 1.4).